Parasitic and Pigmentary

Disposition Categories for Parasites

- **Generalized infestation**
  - **parasites/lesions cannot be removed with certainty - condemn**
- **Localized infestation causing severe health effects - condemn**
- **Localized infestation that can be removed**

Zoonoses

- ***Cysticercus bovis (Taenia saginata)***
- ***C. cellulosae (T. solium)***
- ***Trichinella spiralis***

Trichinosis

- Increased risk in Eastern Europe
- Wild game, pigs fed uncooked garbage, horse meat (France)
- Detection:
  - microscopic exam of diaphragm muscle
  - ELISA??
  - Pool samples, digest meat and visualize
- Freezing to -35C (-31F) or heating to 58C (137F) will inactivate

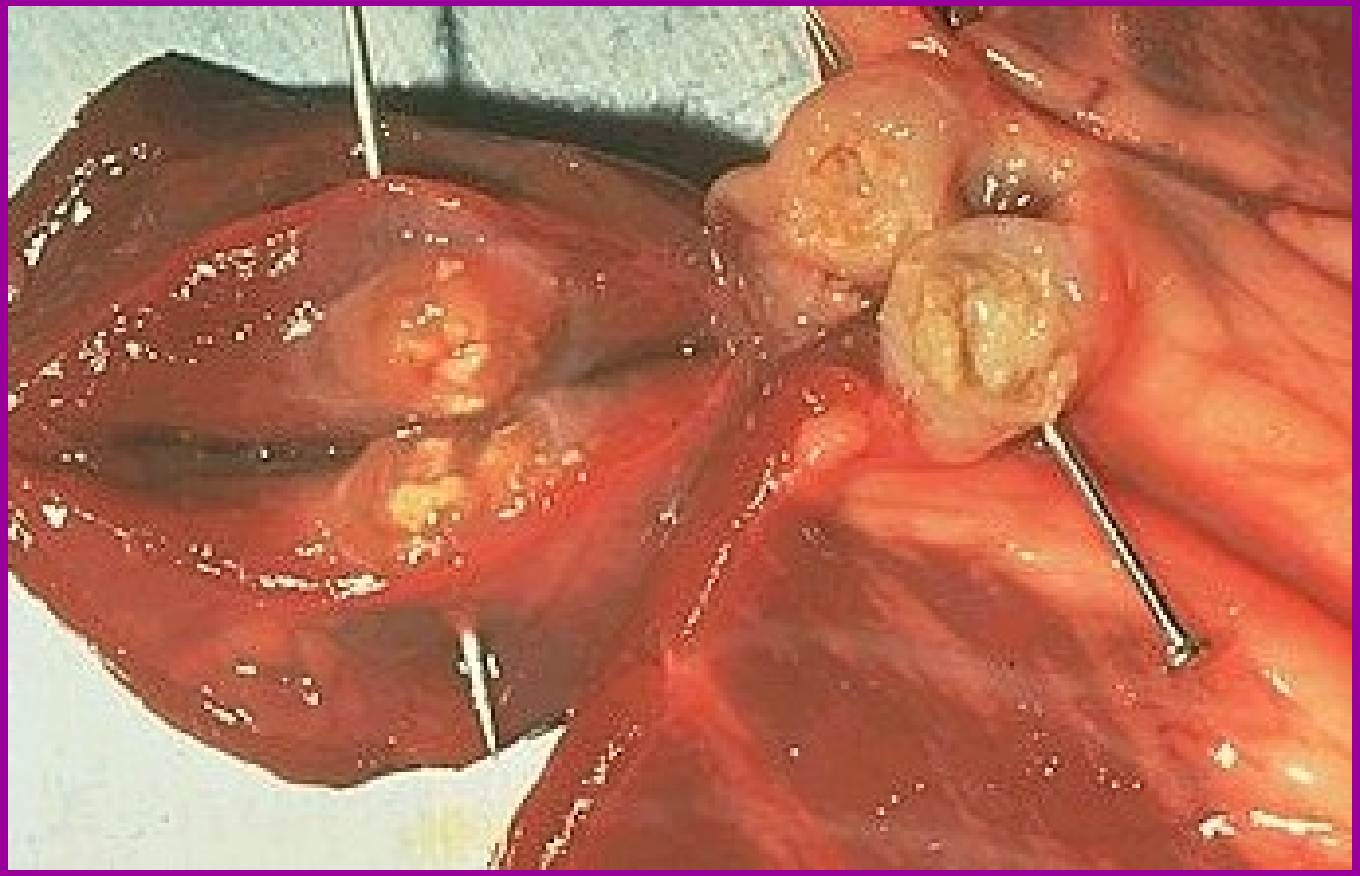
Beef Measles

- ***C. bovis*** **cysts in heart, masticatory muscles, esophagus, tongue, diaphragm, cut surfaces of other muscles**
- **Meat can appear watery or discolored**
- **Finding of any cysts necessitates thorough total inspection of various muscles with numerous incisions**

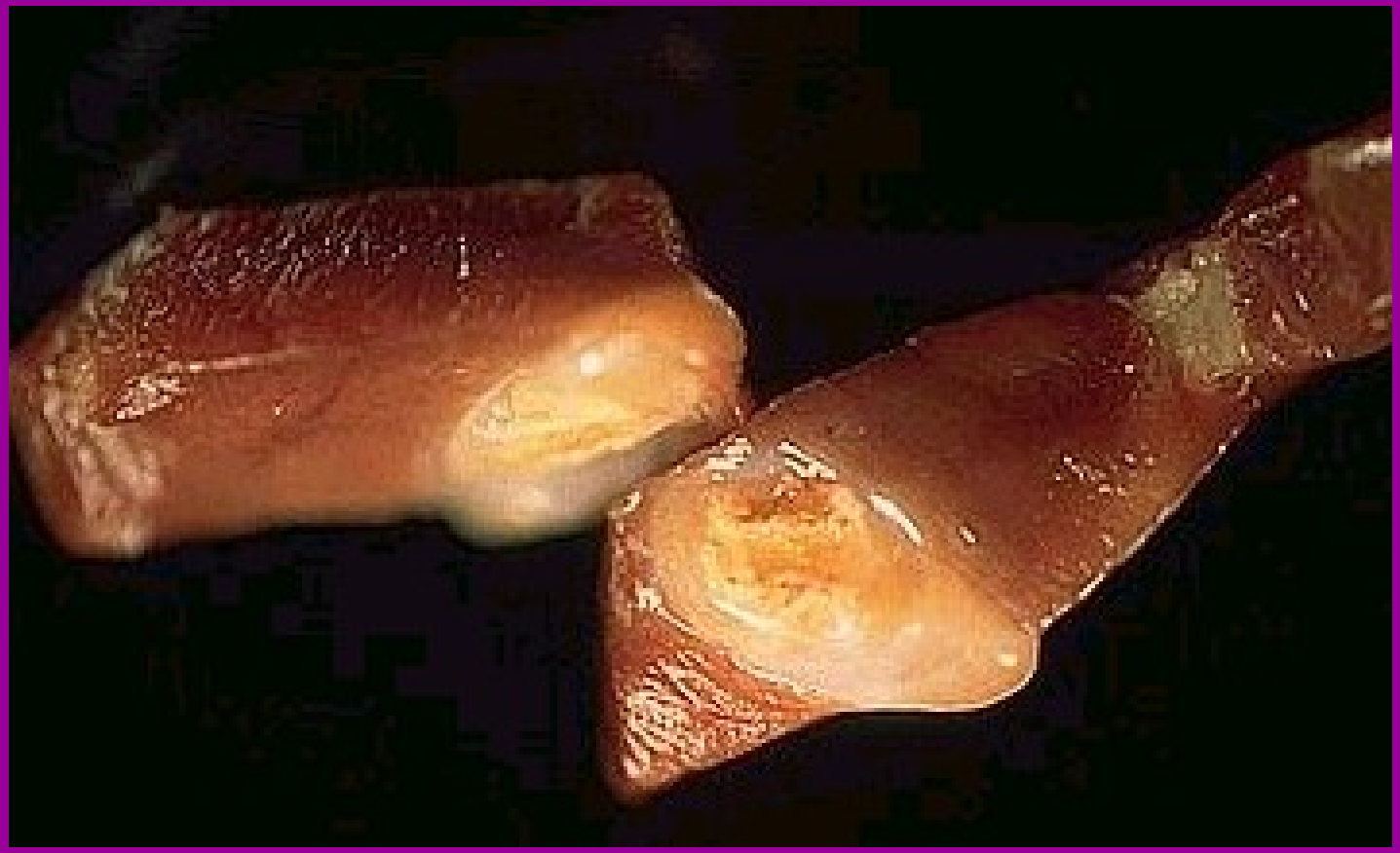
Beef Measles

- **Condemn if cysts present and muscle edematous or discolored**
- **Pass for cooking at 140F if can remove infestation (or freeze at 15F for 10 continuous days)**
- **Condemn if “extensive” cysts (lesions in at least two of usual sites)**

Cysts in heart muscle



Cyst in muscle tissue



Pork Measles

- Muscle may be edematous or discolored
- Cysts occur in muscles of heart, tongue, esophagus, carcass…also fat and viscera
- Condemn excessive infestations
- Remove localized lesions and cook rest of carcass at 170F for 30 min

Cysts on Heart

Skeletal muscle cysts

Sheep parasites

- ***Cysticercus ovis* - not transmissable to man**
  - **Lesions similar to beef but often calcified**
  - **Trim or condemn**
- **Sarcocystosis - protozoan not affecting man**
  - **esophageal and other muscles have white ovoid lesions**
  - **Condemn if excessive or trim out and cook to 170F for 30 min**

Stephanuriasis (kidney worms)

- Not zoonotic but can cause systemic illness in swine
- Kidney, liver, lung lesions
- Brownish to lemon color of skin and fat
- Condemn if systemic changes or trim and cook at 170F for 30 min

Kidney Worms

Anaplasmosis

- Protozoan infection of bloodstream causing anemia and jaundice
- Enlarged spleen or yellow connective tissue
- Condemn if generalized lesions

Pigments

- **Melanosis (black): caused by inflammation, flukes, normal metabolism**
  - **Condemn if can’t remove**
- **Icterus (jaundice): yellow coloration due to serious systemic illness - condemn!**
- **Carotenoids (yellow-orange): from food, condemn liver**

Melanosis

Carotenoid laden liver

Pigments

- **Xanthosis: excessive cellular waste pigments. Brown/coffee colored muscles of carcass, head, heart**
  - **Usually seen in older cattle or those with chronic wasting**
  - **Condemn if generalized or trim out**

Muscle Tissue

Skin Necrosis

Neoplasms

- Not a safety threat
- Generally can be trimmed out
- Severe wasting syndrome associated with cancers may cause other systemic changes requiring condemnation of entire carcass

Papilloma

- Skin growths on cattle, horses
- May spread to digestive tract
- Metastasis requires condemnation of carcass

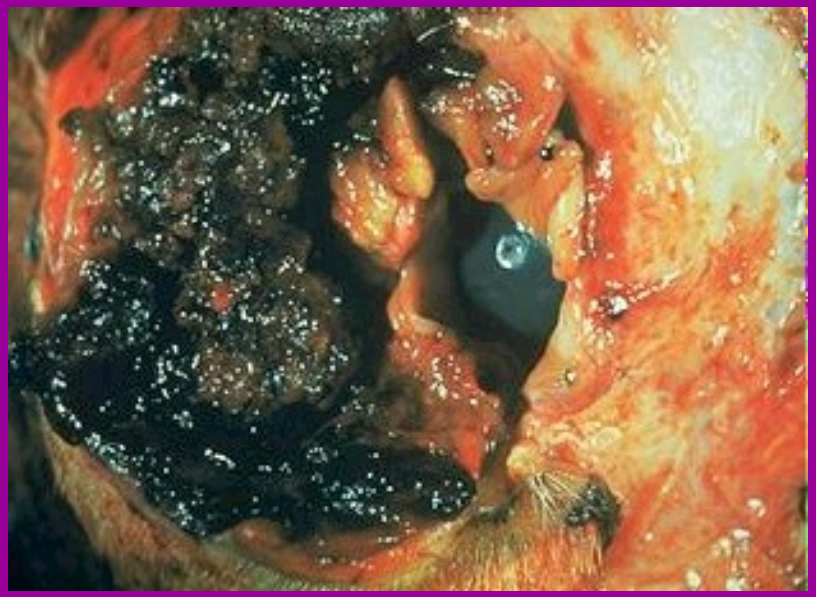
Cutaneous Papilloma

Epithelioma (Cancer Eye)

- Ocular Squamous Cell Carcinoma
- cattle, esp. Herefords (white faced) and sheep, horses, swine
- Regard as malignant
- Can spread locally or thru lymph system to organs
- Condemn carcass if affects the head bone, metastasis seen, or cachexia

Cancer Eye

Metastasis of epithelioma



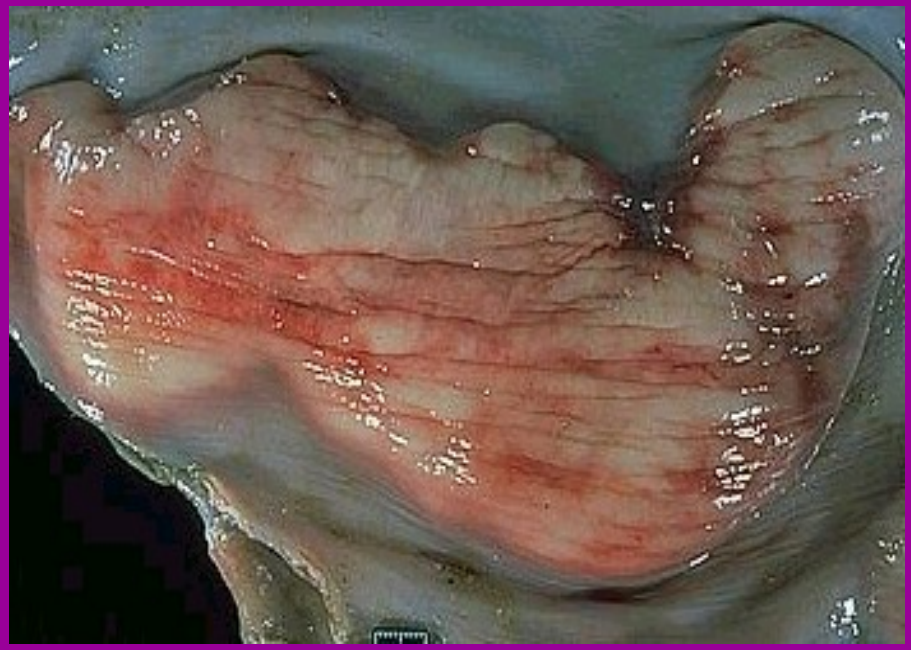
Malignant Lymphoma

- Lymph nodes of cattle enlarged = suspect
- May spread throughout carcass and viscera
- Condemn carcass regardless of extent

Lymphoma

Lymphoma

Lymphoma

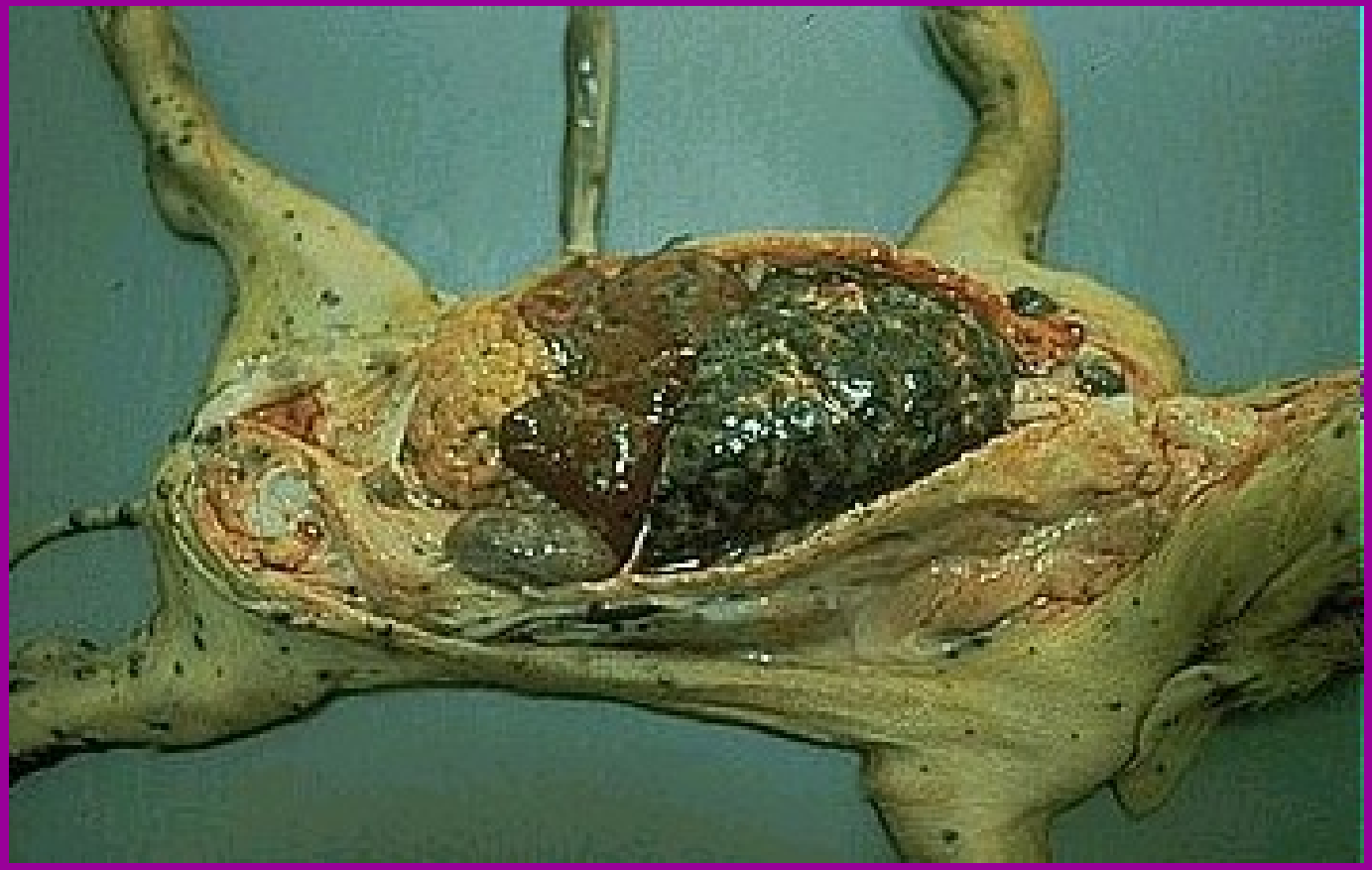


Melanoma

- Black tumors on skin, may resemble melanosis
- Swine: base of ears, midback, tailhead, flanks
- horse: perineal region
- Condemn if metastasis (lungs, LNs, etc)

Skin Melanoma

Spread to lungs



Various melanomas